Space Weather Forecast

Issued on Friday, 06 September 2024 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Moderate flares expected, chance of Strong flares. Slight but increasing chance of S1/Minor Radiation Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been High over the past 24 hours with several low level Moderate class flares. There are currently eight sunspot regions on the visible disc, with the largest region in the southwest which is also magnetically complex. There are also four moderately complex regions on the disc. The remaining regions are smaller and magnetically simple. None of the eight regions showed significant growth or decay, although half of the regions did show some slight increase in size or spot number.
No Earth-directed Coronal Mass Ejections (CMEs) were observed in the last 24 hours.
Solar Wind / Geomagnetic Activity: The solar wind showed CME effects gradually waning. The wind speed was mostly at background levels, generally between 360-400 km/s, peaking at 425 km/s at 05/0015 UTC. The Interplanetary Magnetic Field was initially moderate, but gradually eased to become weak. The north-south component was mostly northward directed. Geomagnetic activity was Quiet.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is steadily easing following the rise in response to a flare on 01 Sep. It remains below the S1/Minor Radiation Storm level.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is expected with a chance of isolated Strong flares. The risk decreases very slightly on Day 2 (07 Sep) as the region currently on the west limb rotates well away, onto the far side.

Solar Wind / Geomagnetic Activity: Recent CME effects from the 01 Sep CME are now declining, with no further CMEs currently expected to arrive at Earth. A fast wind from a coronal hole in the northern hemisphere may bring slightly elevated wind speeds on Day 2 or perhaps into Day 3 (07-08 Sep).

On the whole, geomagnetic activity is expected to be largely Quiet, perhaps reaching Active with a slight chance of Minor Storms on Day 2 into Day 3 should a connection with the HSS from CH65/+ occur.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is currently above background levels, but below the S1/Minor Radiation Storm threshold. There is a slight but increasing chance of exceeding S1 in the coming days.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	15	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	75	70	70	70
Very Active	R3 to R5 X	No	20	15	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	25	25	25
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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